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Recolonizations of the Larch Casebearer Parasites, *Agathis pumila* and *Chrysocharis laricinellae*, in Oregon Using the Branch Method, 1977-1981

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Abstract

Larch branches bearing casebearers (*Coleophora laricella* (Hbn.)) parasitized by *Agathis pumila* and *Chrysocharis laricinellae* were collected from sites in Idaho, Montana, and Washington and distributed at 56 other sites in Oregon in an attempt to extend the range of the parasites and hasten biological control of the larch casebearer.

Keywords: Parasites (insect) (- forest pest control, larch casebearer, *Coleophora laricella*, population distribution.

Early Parasite Releases in the Pacific Northwest

The larch casebearer, *Coleophora laricella* (Hbn.) is an introduced pest of western larch, *Larix occidentalis* Nutt. Since its discovery in Idaho in 1957 it has spread throughout most larch stands in Idaho, Montana, Washington, Oregon, and British Columbia. A biological control program featuring the release of European and Japanese parasites of the casebearer has been pursued in the Pacific Northwest since 1960 (Denton 1972, 1979; Ryan and Denton 1973; Ryan et al. 1975, 1977; Ryan 1981). Two European parasites, *Agathis pumila* (Ratz.) and *Chrysocharis laricinellae* (Ratz.), have become established and appear to be helping reduce casebearer populations in some areas.

Importation of exotic parasites is limited to the adult stage because of rigid quarantine restrictions to prevent the inadvertent introduction of undesirable species. Parasites can be reliably identified only in the adult stage. After being processed at the quarantine station, adult parasites may be released directly in the field or used to start laboratory cultures from which releases are subsequently made. Both methods have been used in the Pacific Northwest. The numbers of adults that can be released is necessarily limited because of restrictions or physical limitations imposed by quarantine, handling, and/or laboratory rearing. Once a parasite becomes established in an area, however, that new colony can become a source for short-distance

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recolonizations without further quarantine considerations. Recolonizing parasites within the same area is a way of speeding up natural dispersal. Large numbers of parasites can be released easily and quickly by this method.

With the early establishment of *A. pumila* and the more recent establishment of *C. laricinellae* in several areas of Idaho, Montana, and Washington, these areas became potential sources of parasites for recolonizing other areas. In the mid 1960's, *A. pumila* was distributed to over 300 sites in Idaho, Montana, Washington, and British Columbia by introducing parasitized casebearers on larch branches (Bousfield et al. 1974). This paper reports the recolonization of *A. pumila* and *C. laricinellae* in Oregon between 1977 and 1981 using the branch method.

Parasite Releases in Oregon, 1977-81

Starting in 1977, branch material bearing casebearers parasitized by *A. pumila and C. laricinellae* has been obtained from several different localities in Idaho, Montana, and Washington and distributed at sites in the northern Blue Mountains and elsewhere in Oregon (fig. 1, tables 1-3).

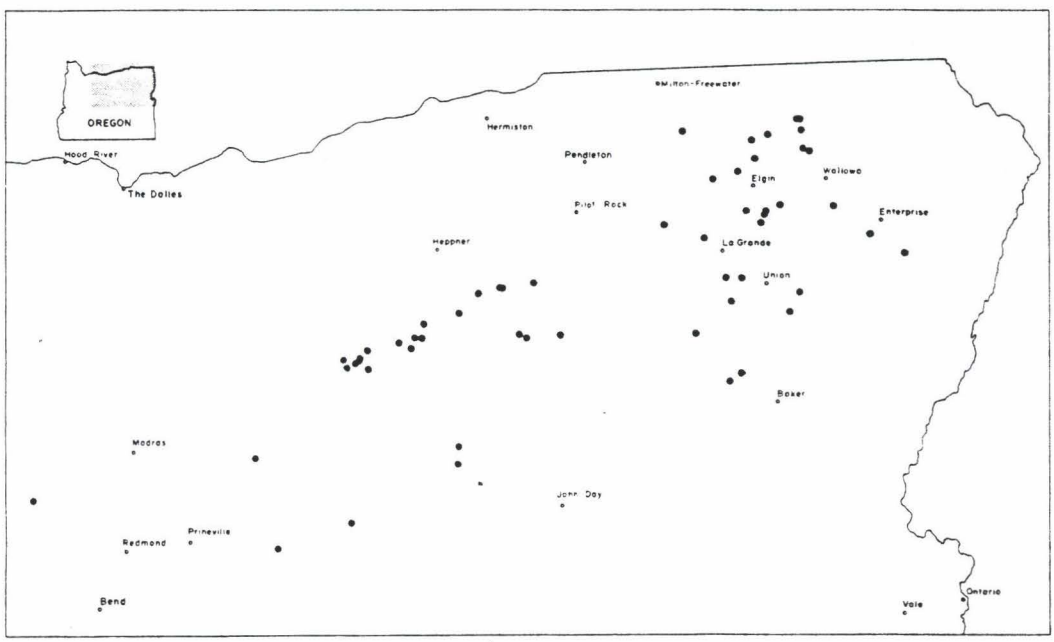

Figure 1. — Locations in northeastern Oregon where the larch casebearer parasites *A. pumila* and *C. laricinellae* were released by the branch method from 1977 to 1981.

Before an area was used as a source of parasites, one or both species were verified to be present in reasonably good numbers. The number of parasites released at each location can only be estimated. Some mortality from mechanical damage during handling was inevitable. Approximately 7,000 parasites were probably released at each location. Exact numbers are immaterial; the critical consideration is whether numbers were sufficient to establish new parasite populations. Establishment will be verified by subsequent sampling at some of the release locations.

Table 1 — Summary of larch casebearer parasite introductions by Boise Cascade Corporation in Oregon, using branches taken from establishment sites in Idaho, Montana, and Washington, 1977-81

Plot number [1]			Year of release and branch source				
Primary reference	Cross reference	Location	1977	1978	1979	1980	1981
1	--	T4N, R41E, S22	Idaho	--	--	--	--
1a	--	T4N, R41E, S23	Idaho	--	--	--	--
1b	--	T4N, R41E, S23	Idaho	--	--	--	--
2	--	T3N, R41E, S11	Idaho	--	--	--	--
3	--	T3N, R41E, S35	--	--	Idaho	--	--
4	--	T3N, R41E, S35	Idaho	--	Idaho	--	--
5	--	T3N, R40E, S9	Idaho	--	Idaho	--	--
6	--	T3N, R39E, S15	Idaho	Idaho, Mont.	--	--	--
7	--	T1S, R39E, S36	Idaho	Mont.	Idaho	--	--
8	--	T1S, R40E, S19	Idaho	Mont.	Idaho	--	--
9	--	T1S, R40E, S17	Idaho	Mont.	Idaho	--	--
10	--	T1S, R40E, S11	Idaho	Mont.	Idaho	--	--
11	--	T4S, R39E, S7	Idaho	--	--	--	--
12 [2]	ODF 10	T4S, R38E, S9	--	--	--	Wash.	Wash.
13 [2]	ODF 11	T5S, R38E, S10	--	--	--	Wash.	Wash.
14 [2]	ODF 12	T2N, R39E, S11	--	--	--	Wash.	Wash.
15 [2]	ODF 13	T4S, R41E, S33	--	--	--	Wash.	Wash.

-- = not applicable.

[1] Primary and cross reference designations are necessary to locate plots given different names by different agencies at the time of their establishment.

[2] Plots 12-15 are the same as plots 10-13, table 3.

Table 2 — Summary of larch casebearer parasite introductions by Kinzua Corporation in Oregon, using branches taken from establishment sites in Idaho, Montana, and Washington, 1978, 1979, 1981

Plot number	Location	Year of release and branch source		
		1978	1979	1981
1	T7S, R23E, S10	Mont., Idaho	Idaho	Wash.
3	T5S, R26E, S30	Mont., Idaho	Idaho	Wash.
5	T6S, R25E, S20	Mont., Idaho	Idaho	Wash.
6	T7S, R23E, S16	Mont., Idaho	Idaho	Wash.
7	T4S, R28E, S21	Mont., Idaho	Idaho	Wash.
8	T4S, R29E, S17	--	Idaho	Wash.
9	T4S, R29E, S16	--	Idaho	Wash.
10	T5S, R27E, S15	--	Idaho	Wash.
11	T6S, R26E, S17	--	Idaho	Wash.
12	T6S, R25E, S13	--	Idaho	Wash.
13	T6S, R25E, S35	--	Idaho	Wash.
14	T6S, R23E, S36	--	Idaho	Wash.
15	T7S, R23E, S10	--	Idaho	Wash.
16	T7S, R23E, S25	--	Idaho	Wash.
17	T7S, R22E, S11	--	Idaho	Wash.
18	T7S, R23E, S19	--	Idaho	Wash.
19	T6S, R30E, S17	Mont., Idaho	Idaho	Wash.
20	T6S, R30E, S22	Mont., Idaho	Idaho	Wash.
21	T11S, R27E, S3	Mont., Idaho	Idaho	Wash.
22	T11S, R27E, S27	Mont., Idaho	Idaho	Wash.

-- = not applicable.

Table 3 — Summary of larch casebearer parasite introductions by the Oregon Department of Forestry and the USDA Forest Service in Oregon, using branches taken from establishment sites in Idaho, Montana, and Washington, 1979-81 [1]/

Plot number [2]/			Year of release and branch source		
Primary reference	Cross reference	Location	1979	1980	1981
1	Wallowa 4	T2N, R42E, S6	Idaho	Wash.	Wash.
2	--	T4S, R30E, S11	Idaho	--	--
3	Weston	T3N, R36E, S1	Idaho	--	--
4	Union Co. 8	T5S, R40E, S25	Idaho	Wash.	Wash.
5	Baker 1	T8S, R38E, S12	--	Wash.	Wash.
6	Baker 2	T8S, R38E, S21	--	Wash.	Wash.
7 [3]/	Baker 3	T6S, R38E, S19	--	Wash.	Wash.
8 [4]/	Umatilla 1	T1S, R35E, S36	--	Wash.	Wash.
9 [3]/	Umatilla 2	T6S, R31E, S13	--	Wash.	Wash.
10 [5]/	BCC 12	T4S, R38E, S9	--	Wash.	Wash.
11 [5]/	BCC 13	T5S, R38E, S10	--	Wash.	Wash.
12 [5]/	BCC 14	T2N, R39E, S11	--	Wash.	Wash.
13 [5]/	BCC 15	T4S, R41E, S33	--	Wash.	Wash.
14	Union 5	T1N, R38E, S6	--	Wash.	Wash.
15	Union 6	T2S, R37E, S22	--	Wash.	Wash.
16	Union 7	T1S, R38E, S16-21	--	Wash.	Wash.
17	Wallowa 1	T3S, R45E, S14	--	Wash.	Wash.
18	Wallowa 2	T1S, R42E, S13	--	Wash.	Wash.
19	Wallowa 3	T2S, R44E, S21	--	Wash.	Wash.
20	Camp Sherman	T13S, R9E, S10	--	Wash.	Wash.
21	Stevensen Mountain	T11S, R19E, S18	--	--	Wash.
22	Line Butte	T15S, R19E, S12	--	--	Wash.
23 [6]/	Deep Creek	T14S, R23E, S7	--	--	Wash.

-- = not applicable.

[1]/ Plots are on privately owned land except as noted.

[2]/ Primary and cross reference designations are necessary to locate plots given different names by different agencies at the time of their establishment.

[3]/ Located on land managed by the Oregon Department of Fish and Wildlife.

[4]/ Located on land managed by the Oregon Department of Forestry.

[5]/ Plots 10-13 are the same as plots 12-15, table 1.

[6]/ Located in the Ochoco National Forest.

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